REMARKS

Claims 10-21 are all the claims pending in the application. By this Amendment, Applicant adds claims 22 -26. Claims 22-26 are clearly supported throughout the specification, *e.g.*, pages 12-20 of the specification and Figures 1, 3, 29, and 38.

Preliminary Matters

As preliminary matters, Applicant thanks the Examiner for acknowledging Applicant's claim to foreign priority and for indicating receipt of the certified copy of the priority document from the International Bureau. Applicant also thanks the Examiner for returning the initialed form PTO/SB/08 submitted with the Information Disclosure Statement filed on July 11, 2005.

The Examiner is respectfully requested to indicate acceptance of the drawings filed with the application on July 11, 2005.

Claim Rejections under 35 U.S.C. § 102(b)

Claims 10-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,656,906 to Iwashita (hereinafter "Iwashita"). Applicant respectfully traverses this rejection in view of the following comments.

To be an "anticipation" rejection under 35 U.S.C. § 102, the reference must teach every element and recitation of the Applicant's claims. Rejections under 35 U.S.C. § 102 are proper only when the claimed subject matter is identically disclosed or described in the prior art. Thus, the reference must clearly and unequivocally disclose every element and recitation of the claimed invention.

This response initially focuses on the independent claim 10. Claim 10, among a number of unique features, recites: "first processing including detecting a turning surface having a largest diameter in the product model; and a second processing including shifting or rotating the product model so that the turning axis of the product model determined matches a turning axis of the work model." The Examiner alleges that claim 10 is directed to an automatic programming method and is anticipated by Iwashita. Applicant respectfully disagrees.

An exemplary, non-limiting embodiment of the present invention discloses an automatic programming method for automatically finding an optimal position of a product model (an end result object) in a work model (initial workpiece). That is, the workpiece is processed into the product model by using instructions created by the automatic programming method of the exemplary embodiment. In particular, the machining area is determined based on a state of positioning the product model. First, a turning surface having a largest diameter in the product model is detected and a central axis of rotation on the detected turning surface is determined. Next, the product model is shifted so that the determined central axis matches a turning axis of the work model. Moreover, the product model is shifted so that an end face of the product model matches a program origin preset in the work model.

Accordingly, since a machining plane having the largest diameter in the product model is used to automatically arrange the product model so as to be overlapped on the work model, time and labor for an operator to manually calculate the position of the product model with respect to the work model can be saved, thereby enabling efficient programming operations. It will be appreciated that the foregoing remarks relate to the invention in a general sense, the remarks are

not necessarily limitative of any claims and are intended only to help the Examiner better understand the distinguishing aspects of the claims mentioned above.

Iwashita, on the other hand, relates to a servo parameter adjusting program, which judges whether or not the servo parameters set for the execution are adequate and automatically adjusts the parameters when they are inappropriate (*see* Abstract and col. 1, lines 43 to 63). The servo parameters are the parameters determining responsibility of servo control system 4 such as gains, inertia, and backlash correction values (col. 2, lines 46 to 50).

That is, Iwashita discloses judging whether or not the adjustments of servo parameters are necessary. When the servo control system requires the adjustment of the servo parameters, the servo parameter automatic adjusting apparatus connects to numeric control (NC) apparatus of servo control system in order to make the adjustment of the servo parameters. Then, the servo parameter automatic adjustment apparatus is set to the servo parameter adjustment mode. The servo parameter adjusting mode allows the servo parameter automatic adjusting apparatus to select servo parameter adjusting programs and send out the selected operation program to NC apparatus 2. The NC apparatus 2 receives the selected adjusting program and temporarily stores it, while reading out initial servo parameters stored beforehand in NC apparatus 2. These initial servo parameters are read out according to the operations to be adjusted. Subsequently, the NC apparatus outputs commands to the servo motor 3 in accordance with the selected adjusting program and the initial servo parameters. The servo motor 3 and the servo control system 4 operate in accordance with these commands (Fig. 4; col. 6, lines 5 to 38).

In Iwashita, the NC apparatus samples the servo information representing the response characteristics of the operation of servo control system and sends them to servo parameter automatic adjusting apparatus. Such servo information includes, for example, position data, speed data, and current data. The automatic adjusting apparatus analyzes this information by obtaining a difference between the sampled value and a predetermined reference value. When the response characteristics of the servo control system is found not satisfactory compared with the reference value, it is concluded that the servo parameter presently set for the servo control system is not adequate, and, the processing proceeds to adjusting the servo parameters (Figs. 1 and 4; col. 6, lines 40 to 63).

In short, Iwashita relates to adjustment of the parameters by comparing current parameters to the reference ones. Iwashita, however, is unrelated to positioning a product onto a workpiece. That is, Iwashita does not disclose or suggest overlapping the product model onto the work model and comparing the two. For example, Iwashita fails to disclose detecting a turning surface having a largest diameter in the product model and shifting the product model to match to the work model.

The Office Action indicates that col. 2, lines 46 to 50 of Iwashita discloses "detecting a turning surface having a largest diameter in the product model" (*see* page 2 of the Office Action). Col. 2, lines 46 to 50 of Iwashita recites:

> [t]he servo parameters, as objects of automatic adjustment, are the parameters determining responsibility of servo control system 4, and will include, for example, gains, inertia, and backlash correction values.

As is visible from the passage above, there is no disclosure in Iwashita of detecting a surface having the largest diameter in the product model. In fact, there is no disclosure of a work model and a product model. In other words, the above-quoted passage of Iwashita simply discloses that parameters may be gains, inertia, and backlash correction values and not a surface with a largest diameter in the product model. In short, Iwashita does not disclose detecting the surface with a largest diameter in the product model.

Since Iwashita only discloses having the servo parameters and fails to disclose determining the surface with the largest diameter in the product model, the rejection is improper as it lacks "sufficient specificity" required under 102. "[A]nticipation under § 102 can be found only when the reference discloses exactly what is claimed and that where there are differences between the reference disclosure and the claim, the rejection must be based on § 103 which takes differences into account." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985); MPEP § 2131.

The Office Action further alleges that "a second processing including shifting or rotating the product model so that the turning axis of the product model determined matches a turning axis of the work model" is disclosed in col. 5, lines 24 to 31 of Iwashita (*see* page 2 of the Office Action). Col. 5, lines 24 to 31 of Iwashita recites:

> Interface 209 is connected to manual pulse generator 71 and receives pulses generated therefrom. Manual pulse generator 71 is mounted on the operation board of the machine tool, thereby enabling an operator to precisely determine shift the position of a movable part or member of the machine tool by controlling each axis thereof based on

> distribution pulses generated by manual
> operation of the manual pulse generator 71.

The above-quoted passage of Iwashita, however, only discloses manual pulse generation for shifting the position of the movable part of the machine tool. That is, Iwashita discloses shifting the machining tool and not the product model. Moreover, the shifting is executed in accordance with the input from the operator and not based on the determined turning axis of the product model. In other words, the shifting is based on manual instructions from the operator and not on the determined turning axis. Furthermore, Iwashita fails to disclose turning the machining tool so that it matches the work model. That is, Iwashita does not disclose matching the turning axis of the product to the turning axis of the work model.

Therefore, "first processing including detecting a turning surface having a largest diameter in the product model; and a second processing including shifting or rotating the product model so that the turning axis of the product model determined matches a turning axis of the work model," as set forth in claim 10 is not disclosed by Iwashita, which lacks determining the surface having a largest diameter in the product model and rotating the product model so that its turning axis matches the work model. For at least these exemplary reasons, claim 10 patentably distinguishes from Iwashita. Accordingly, Applicant respectfully requests the Examiner to withdraw this rejection of claim 10 and its dependent claims 11-13.

In addition, dependent claim 12 recites: "when a part of the turning surface is missing, the first processing further includes setting a distance from the central axis of rotation to the farthest point as a diameter of the turning surface." The Office Action alleges that col. 10, lines

1 to 15 of Iwashita discloses the unique features of claim 12 (*see* page 3 of the Office Action).

Col. 10, lines 1 to 15 of Iwashita recites:

> FIGS. 6A through 6C show an example of the effect of the servo parameter automatic adjustment according to the present invention in case where the present invention is applied to the circular machining program under the condition that a commanded radius is 10 mm and a machining speed is 4,000 mm/min. FIG. 8A shows the locus generated in the case where such an adjustment is not carried out, wherein "A" represents the reference locus of 10 mm radius, "B" represents a locus radially deviated by +20 .mu. from the reference locus, and "C" represents a locus radially deviated by -20 .mu. from the reference locus.
>
> FIG. 6B shows the result of the servo parameter adjustment with regard to the feedforward coefficient. FIG. 6C shows the result of the servo parameter adjustment with regard to the correction value for correcting quadrant projections as well as the feedforward coefficient.

As is visible from the above-quoted passage of Iwashita, Iwashita only discloses correcting feedforward coefficient. Iwashita, however, fails to disclose having a part of the turning surface missing. Accordingly, Iwashita fails to disclose or suggest that when a part of the turning surface is missing, the distance from the central axis to the farthest point is set as a diameter of the turning surface. For at least these additional exemplary reasons, claim 12 is patentably distinguishable from Iwashita.

In addition, dependent claim 13 recites: "the product model is displayed in a state held by a jig model." The Office Action alleges that the CRT/MDI unit 70 of Iwashita discloses these unique features of claim 13 (*see* page 3 of the Office Action). With respect to the CRT/MDI unit

70, Iwashita only discloses that data is entered by the operator using CRT/MDI 70 (col. 4, lines 46 to 49) and that data signals, such as those corresponding to present positions of respective axes of the machine tool, alarms, servo parameters, shift commands to the axes during simulation, and servo information, are sent to CRT/MDI unit 70 and displayed on its monitor (col. 5, lines 14 to 18). That is, in Iwashita, the CRT/MDI unit 70 is a manual data input device having a processor, memories, a display, and a keyboard (col. 5, lines 18 to 24). Iwashita, however fails to disclose a jig. In Iwashita, only parameters, commands, and servo information are displayed and not the product model. In short, Iwashita fails to disclose or suggest displaying a product model held by a jig. For at least these additional exemplary reasons, claim 13 patentably distinguishes from Iwashita.

Next, independent claims 14 and 18 recite features similar to, although not necessarily coextensive with, the features argued above with respect to claim 10. Therefore, arguments presented with respect to claim 10 are respectfully submitted to apply with equal force here. For at least substantially analogous reasons, therefore, independent claims 14 and 18 are patentably distinguishable from Iwashita. Accordingly, Applicant respectfully requests the Examiner to withdraw this rejection of claims 14 and 18. Claims 15-17 and 19-21 are patentable at least by virtue of their dependency on claims 14 and 18, respectively.

New Claims

In order to provide more varied protection, Applicant adds claims 22-26. Claims 22-26 are patentable at least by virtue of their dependency on claim 10.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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